



Department of Veterans Affairs

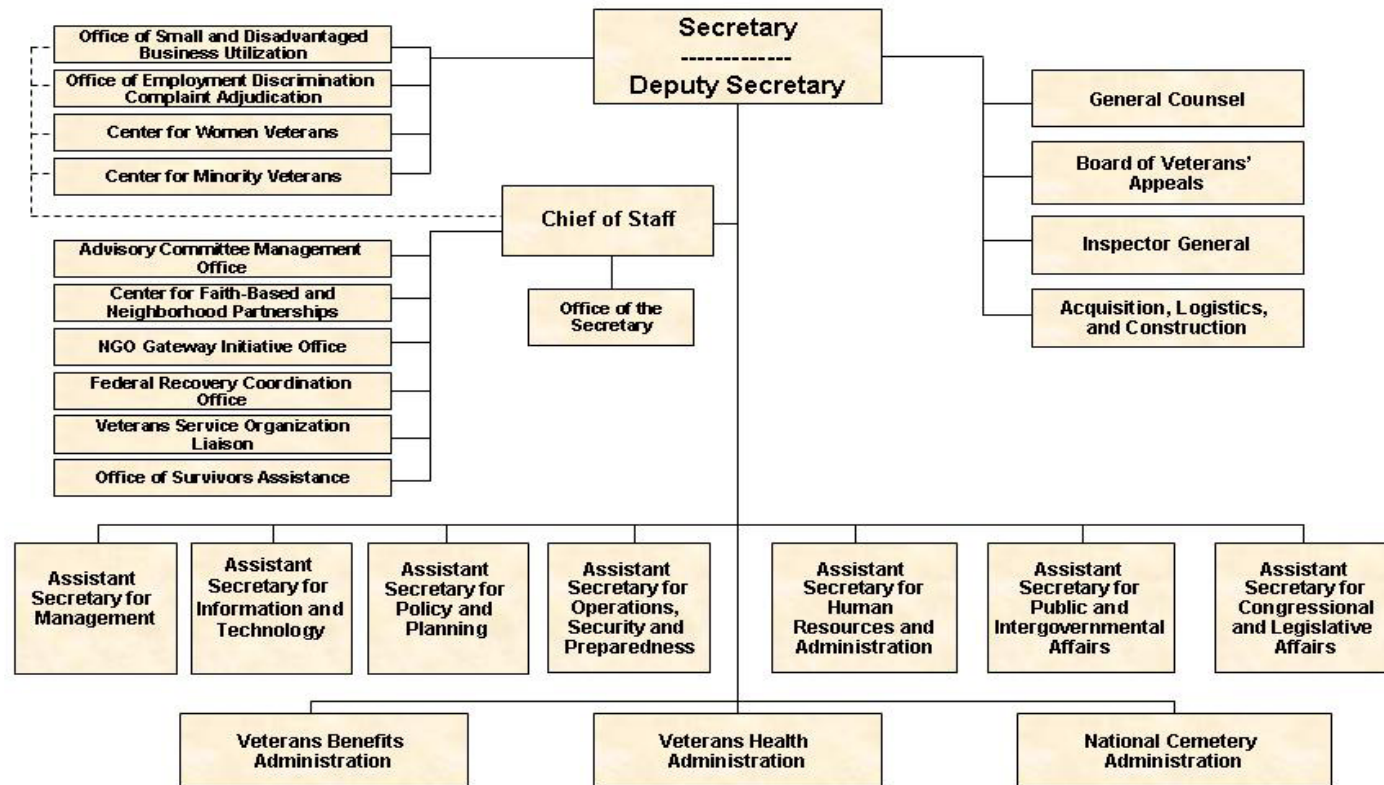
**Department of Veterans Affairs (VA)
Electronic Health Record:
Providing Information for Clinical Care and Data for
VA Health Research**

National Institute of Health/National Library of Medicine:
Workshop on Long-term Preservation & Management of
Electronic Health Record
Bethesda, Maryland
April 5 – 6, 2011

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Office of Informatics and Analytics (OIA)
Veterans Health Administration (VHA)
United States Department of Veterans Affairs

Department of Veterans Affairs (VA)

DEPARTMENT OF VETERANS AFFAIRS

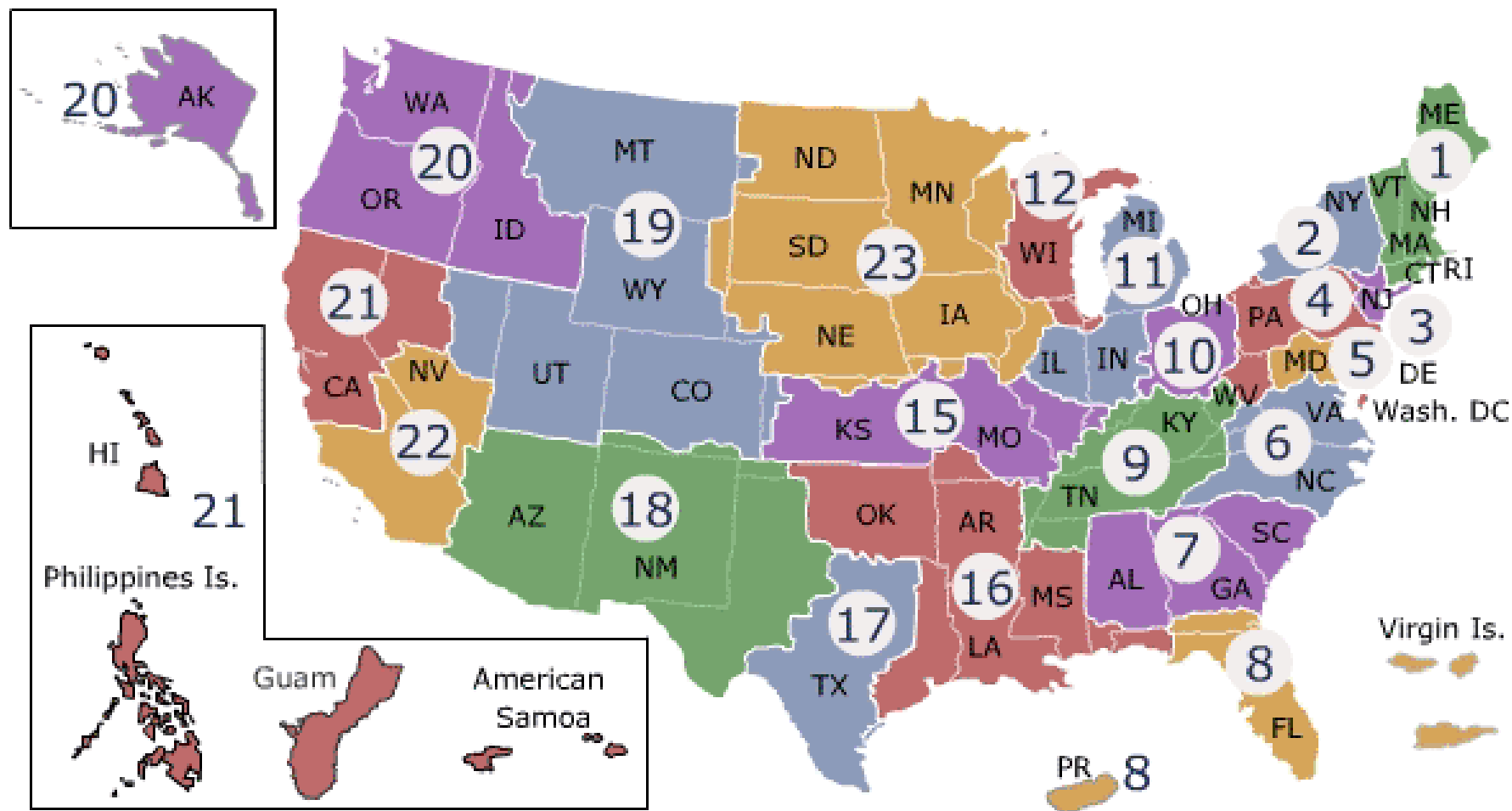


_____ Direct Report - - - - - Coordination

June 2009

Veteran Integrated Service Networks (VISN)

- Health care delivery managed by 21 VISNs



Department of Veterans Affairs (VA) At-a-Glance

- VA has more than 300,000 employees
- The Veterans Health Administration (VHA) has 243,000 of those employees

Fiscal Year 2010 statistics

- 8.34 million Veterans enrolled for VA care
- 6.0 million patients treated
- 75.6 million outpatient visits
- Over 679,000 admissions

Source: VHA Office of the Assistant
Deputy Under Secretary for Health for
Policy and Planning – 2010/Fiscal
Year 2010 – Quarter 4

VA Health Care Facilities

VA Health Care Facilities	Quantity
VA Hospitals	152
VA Community Living Centers	133
Domiciliary Residential Rehabilitation Treatment Programs	96
Outpatient Clinics Total	958
Hospital-based Outpatient Clinics	152
Independent Outpatient Clinics	6
Mobile Outpatient Clinics	9
Community Based Outpatient Clinics	791
Vet Centers	270

Source: VHA Office of the Assistant
Deputy Under Secretary for Health
for Policy and Planning – 2010/Fiscal
Year 2010 – Quarter 4

Veterans Health Information Systems and Technology Architecture (VistA) Background

VistA

The screenshot displays the VistA CPRS (Computerized Patient Record System) interface. The window title is 'VistA CPRS in use by: (VISTASERVER)'. The patient information bar shows 'TEST CPRSPatient' with ID '000-00-5435' and birth date 'May 21, 1956 (43)'. The status is 'Visit Not Selected' and 'Primary Care Team Unassigned'. The interface is divided into several sections: 'Active Problems' (Psychogenic Headache, Calculus of Kidney, Agitation, etc.), 'Allergies / Adverse Reactions' (Furosemide, Penicillin, etc.), 'Postings' (Allergies), 'Active Medications' (Sulfamethoxazole, Vancomycin), 'Clinical Reminders' (Alcohol Abuse Screening, Diabetes, etc.), 'Recent Lab Results' (Anc-Bleeding Time, Blood Lc Lb), 'Vitals' (T 98.6 F, P 60, R 18, etc.), and 'Appointments / Visits / Admissions' (Mar 13, 00:00:00, Feb 29, 00:08:09, etc.). The bottom navigation bar includes links for 'Cover Sheet', 'Problems', 'Meds', 'Orders', 'Notes', 'Consults', 'D/C Summ', 'Labs', and 'Reports'.

- Single, integrated Computerized Patient Record System (CPRS) used throughout the Veterans Health Administration in all health care settings (inpatient, outpatient, long-term care)
- Delivers an integrated record covering all aspects of patient care and treatment

VistA includes many components to deliver high-quality health care to our Nation's Veterans, including:

- Computerized Patient Record System (CPRS)
- VistA Imaging
- Bar Code Medication Administration
- Personal Health Record, My HealtheVet

The screenshot displays the VistA software interface, which is a comprehensive medical record system. The interface is divided into several windows:

- VISTA Imaging Display:** Shows medical images, including a CT scan of the sigmoid colon and a chest X-ray.
- Vista CPRS in use by:** The central window displays patient information for **TEST CPRSPatient** (000-00-5436, May 21, 1956 (43)). It includes sections for:
 - Active Problems:** Psychogenic Headache, Calculus of Kidney (icd-9-Cm 592.0), *Agitation, Cytomegalic Inclusion Disease, Hypomagnesemia, Emphysema Nec, Rat Bite.
 - Allergies / Adverse Reactions:** Furosemide, Penicillin, Bee Sting, Penicillins, Sulfonamide/Related Antimicrobials.
 - Active Medications:** Sulfamethoxazole 800/Trimeth 160mg Tab (Active), Vancomycin 125mg Cap (Active).
 - Clinical Reminders:** Alcohol Abuse Screening (CAGE) (Apr 01.00), Diabetes - Urine Protein (Jan 05.00), Diabetes - Urine Microalbumin (Feb 08.00), Diabetes - Serum Creatinine (DUE NOW), Diabetes - Hemoglobin A1c (Feb 08.00), Diabetes - Lipid Profile (Jan 05.00), Diabetic Eye Exam (Jul 01.99), Dementia Labs - Vit B12/Folate (DUE NOW), Hep C-Dz & Transmission Ed (DUE NOW), ACE Inhibitor for EF<40% (DUE NOW), Inhaler for FEV1<50% Predicted (DUE NOW).
 - Recent Lab Results:** Anc-Bleeding Time Blood Lc Lb #325448 (Feb 25.00).
 - Vitals:** T 98.6 F, P 60, R 18, BP 120/80, HT 51 in, WT 180 lb, PN 4.
 - Appointments / Visits / Admissions:** Mar 13.00 09.00 Nursing Procedure Dream, Feb 29.00 08.09 Allergy Injections (9a) Chec, Feb 25.00 13.54 Id/Pc Volpp (8a) Dele, Feb 14.00 13.35 Allergy Injections (9a) Chec, Jan 11.00 08.00 Short Stay Unit Surg Canc, Dec 16.99 15.00 Hpw Minority Vet Grp 3b-120, Dec 15.99 09.00 Mhc Pena 1c-251 Chec.

VA's Electronic Health Record Implementation: History

- More than 30 years experience developing medical IT solutions
- Veterans Health Information Systems and Technology Architecture (VistA)
 - “World class,” award-winning
 - Harvard University Innovations in American Government Award
 - “Top 100” CIO Award
 - Toward the Electronic Patient Record (TEPR), 1st Place Personal Health Record Award for My HealtheVet – VA’s personal health record
 - Government Technology Leadership award for VA’s Bar Code Medication Administration program
 - Built in partnership with clinicians, allied health and health information management professionals – key to successful development and adoption
 - One contributor to VA’s success

VistA's History



Decentralized

Centralized

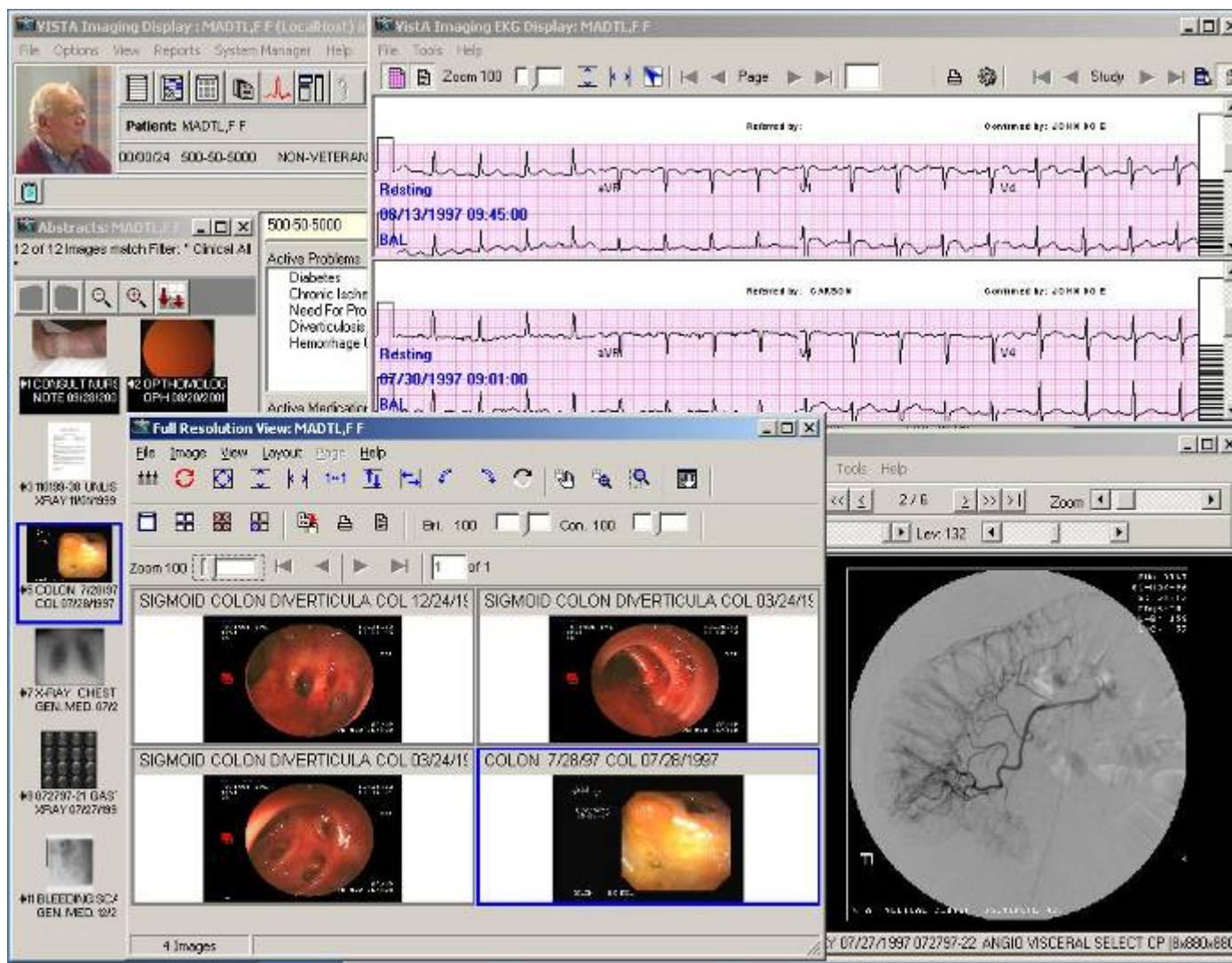
Standardized

- **Decentralized Hospital Computer Program (DHCP)** is the precursor of today's system
 - Decentralized approach allowed site level control
 - Centralized applications were made available and were enriched by locally developed software
- **VistA** has evolved to over 150 tightly integrated applications
 - Built by hundreds of developers over thousands of man hours
 - Inconsistencies in coded data

VistA Implementation: Challenges

- Long-term preservation, storage of records
- Synchronization
 - Data standardization
 - Impact of continuing technology changes
 - Community and regional health exchanges/data sharing
 - Interoperability, semantic interoperability, and privacy/security issues
- User training
- Usability
- System maintenance and integration
 - Availability of trained/qualified technological support

Vista Imaging





Bar Code Medication Administration (BCMA)

Virtually eliminates errors at the point of administration

History of Bar Code Medication Administration (BCMA)

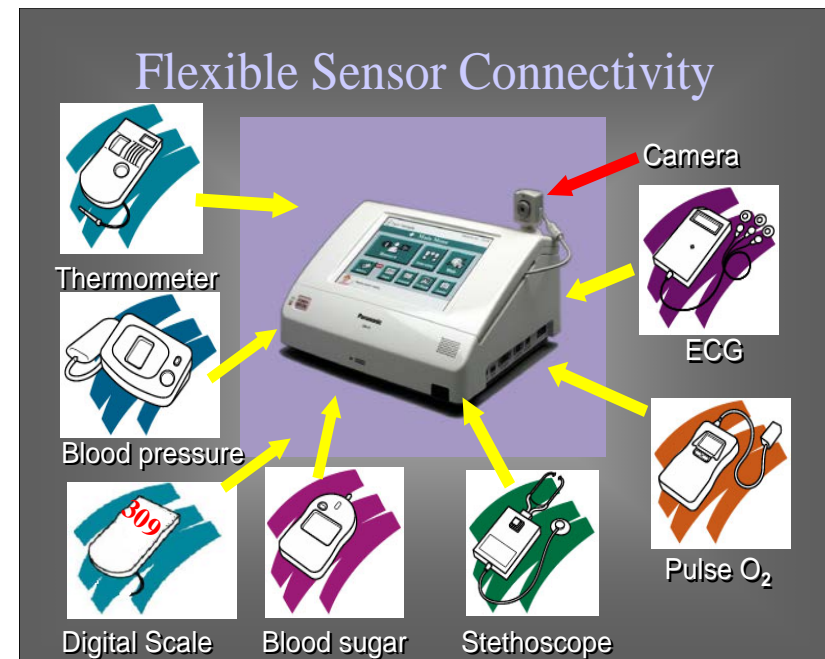
- **1994**
 - VA was one of the first health care organizations to develop BCMA technology to improve patient safety
 - Piloted by field staff at the Topeka Veterans Affairs Medical Center (VAMC)
- **1999**
 - Rolled out to all VAMCs (60,000 beds)
- **2003**
 - 100% of all VA wards documenting medication administration using BCMA
- **2010**
 - > 2.8 Million bar code scans observed since inception
 - ~678,000 medications scanned each day

Home-Telehealth Technologies

TeleVyou 500 Stand-alone Color Videophone

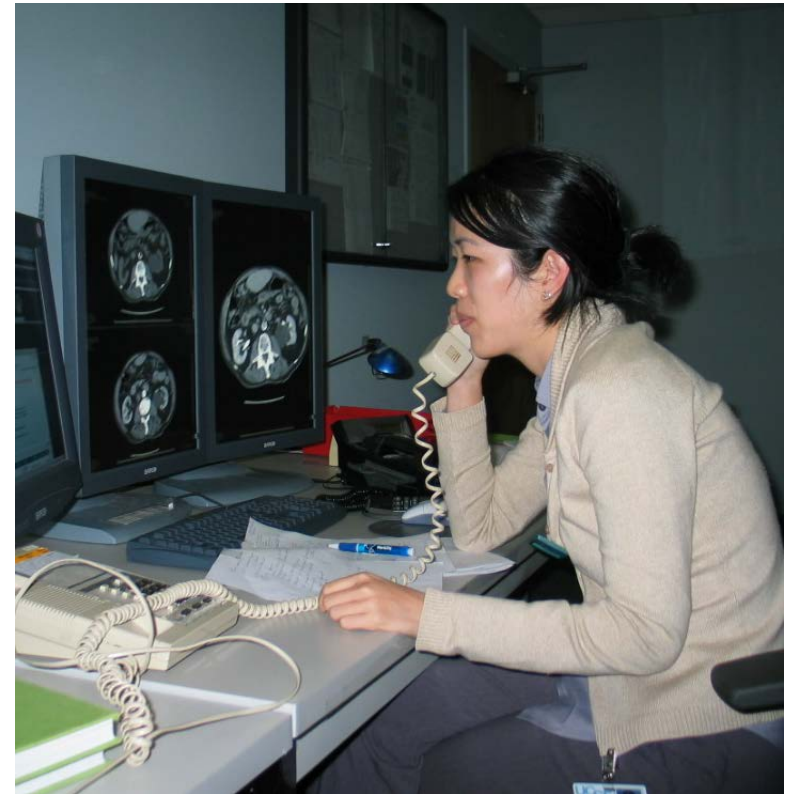


“Remote Physiological Monitoring



VA Teleradiology Center

Radiology interpretation provided in real time to every point of care from expert centers





www.myhealth.va.gov

My Health, My Care: 24/7 ^{Online} Access to VA

My Health eVet Overview

www.myhealth.va.gov



3-Tier Access Model:

- Visitors
- Registrants
- In-Person Authenticated (IPA) Users

August 2010:

- Over 43 million visits
- Over 1 million registered users
- Over 22,000 users have an IPA account
- Over 16.9 million VA prescription refills since August 2005

“Blue Button” Initiative



"Today I can announce that for the first time ever Veterans will be able to go to the VA website, click a simple **“blue button,”** and download or print your personal health records so you have them when you need them and can share them with your doctors. . . .” –President Obama

@Disabled American Veterans (DAV), Aug 2, 2010

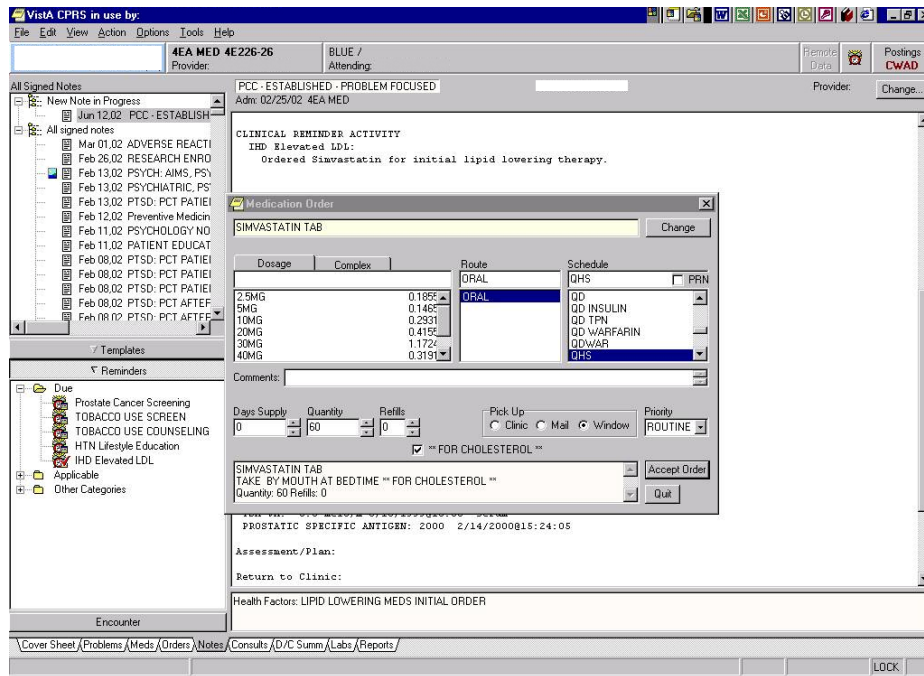
Creating a New Way to Engage Veterans

“Blue Button” access to Personal Health Records



- Based on My HealtheVet
- All the capabilities Veterans rely on
- All the security Veterans trust
- Simplifies basic exchange with other applications
- Improves record portability

VistA Benefits



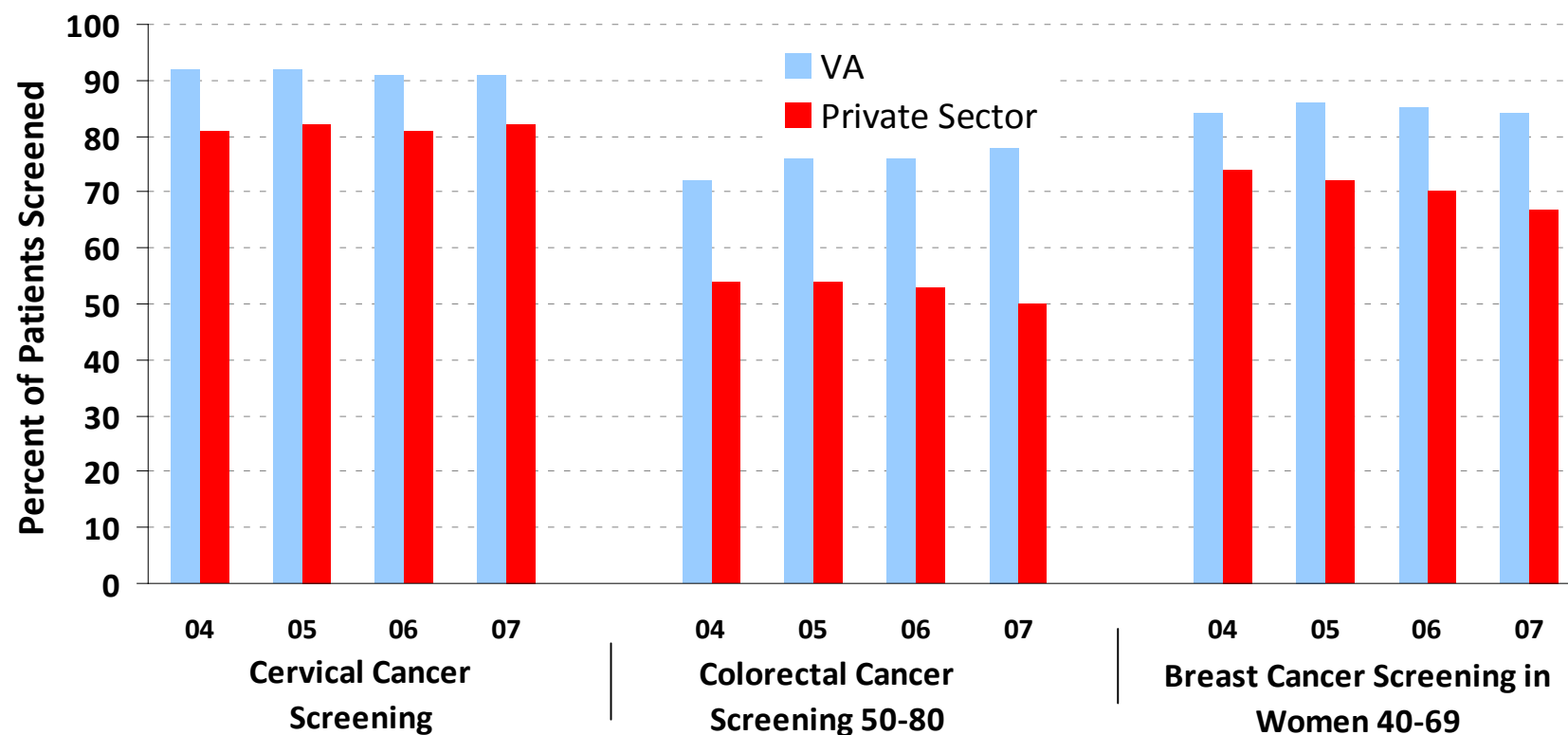
- Improves patient safety and health care quality
- Reduces the frequency of medical errors
- Reduces costs
- Increases efficiencies through information management
- Advances the delivery of appropriate, evidence-based medicine
- Coordinates care among different providers
- Is available throughout VA's health care network

How VA Care Compares: Quality Measures

INDICATOR	VA 2009	VA 2008	COMMERCIAL 2008	MEDICARE 2008	MEDICAID 2008
Breast cancer screening	87%	87%	70%	68%	51%
Cervical cancer screening	92%	92%	80%	n/a	66%
Colorectal cancer screening	80%	79%	59%	53%	n/a
LDL Cholesterol < 100 after AMI, PTCA, CABG	67%	66%	60%	57%	40%
Diabetes: DM control HbA1c < 9.0%	98%	97%	89%	88%	81%
Diabetes: LDL-C<100	69%	68%	46%	49%	34%
Diabetes: Eye Exam	88%	86%	57%	61%	53%
Diabetes: Renal Exam	95%	93%	82%	88%	77%
Diabetes: BP < 140/90	80%	78%	66%	60%	57%
Smoking Cessation Counseling	96%	89%	77%	n/a	69%
Smoking: Medications offered	90%	84%	54%	n/a	41%
Smoking: Referral/strategies	96%	92%	50%	n/a	41%
Immunizations: Influenza	83%	84%	n/a	71%	n/a
Immunizations: Pneumococcal	95%	94%	n/a	67%	n/a

Cancer Screening, Selected Outpatient Quality Measures

VA and Private Sector, 2004 - 2007



The Value of an Electronic Health Record

- VA invested \$4 billion in health IT and saved more than \$7 billion from 1997 to 2007
 - Elimination of duplicated tests and reduction of medical errors accounted for 86% percent of savings
- Key findings
 - VA spends larger proportion of budget on health IT than other U.S. health care providers
 - VA has adopted health IT more widely than other U.S. health care providers
 - At VA, improved performance measures in areas of preventative care and treatment of chronic conditions coincide with adoption of IT tools related to treatment

Study authors: The Center for IT Leadership

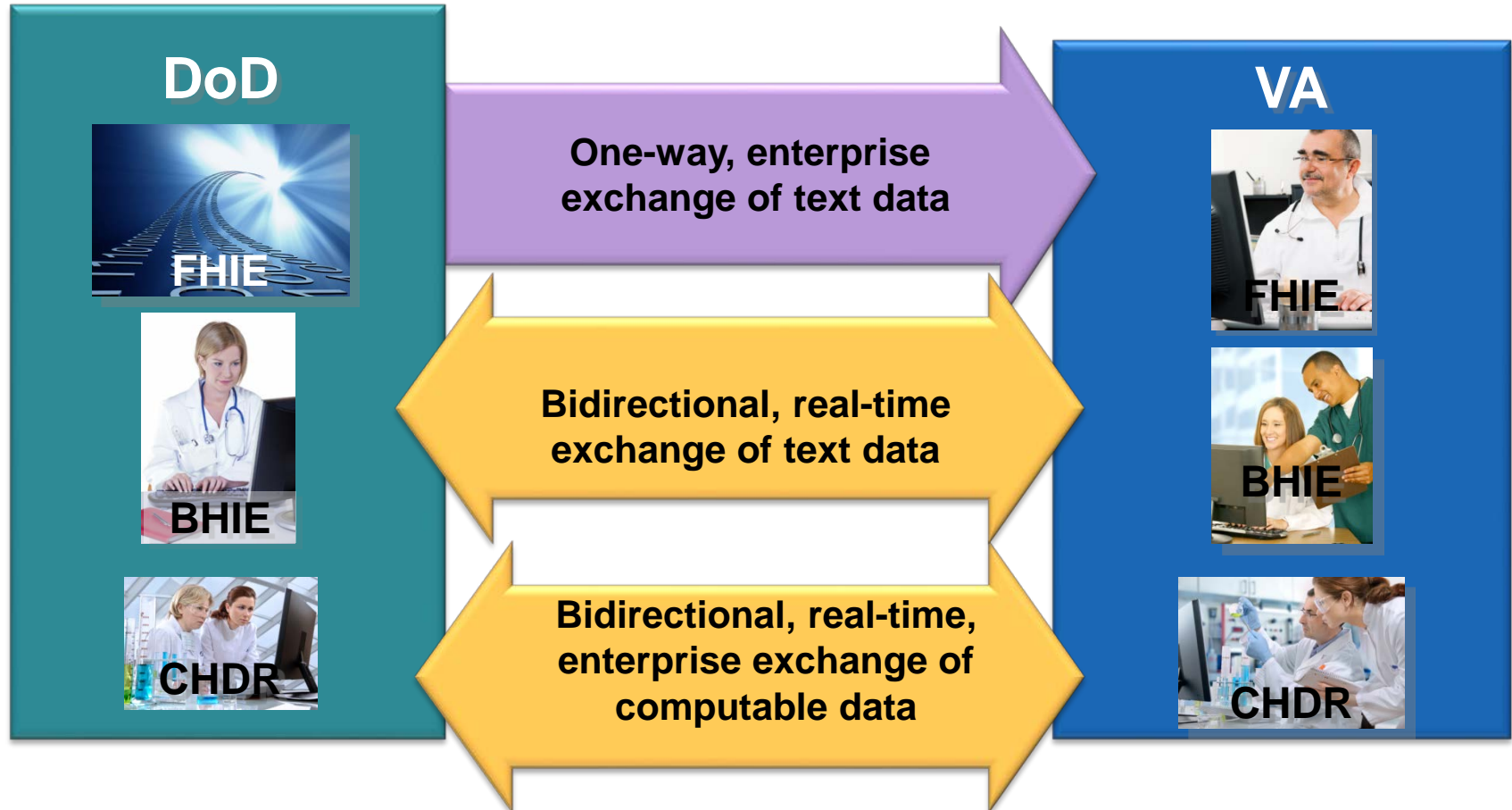
**Health Affairs*, 29, no. 4 (2010): 629-638

<http://content.healthaffairs.org/cgi/content/full/29/4/629#SEC2>

Adoption of Selected Applications, VA and U.S. Private Sector

- Electronic Health Record (EHR)/Electronic Medical Record (EMR)
 - VA = 100% by 2002
 - Private Sector = 61% Inpatient by 2007
 - Private Sector = 12% Outpatient by 2007
- Computerized Provider Order Entry (CPOE)
 - VA = 100% by 2002
 - Private Sector = 16% Inpatient by 2007
- Bar Code Medication Administration
 - VA = 100% by 2002
 - Private Sector = 23% Inpatient by 2007

DoD/VA Health Information Sharing Partnership



Federal Health Information Exchange – FHIE
Bidirectional Health Information Exchange – BHIE
Clinical Data Repository/Health Data Repository - CHDR

Support for Electronic Health Record Development

- *“By computerizing health records, we can avoid dangerous medical mistakes, reduce costs, and improve care.”*

*-- President George W. Bush, State of the Union Address,
January 20, 2004*

- On April 9, 2009, President Obama directed the Department of Defense and the Department of Veterans Affairs to create the Virtual Lifetime Electronic Record that: *“will ultimately contain administrative and medical information from the day an individual enters military service throughout their military career and after they leave the military.”*

-- President Barack Obama

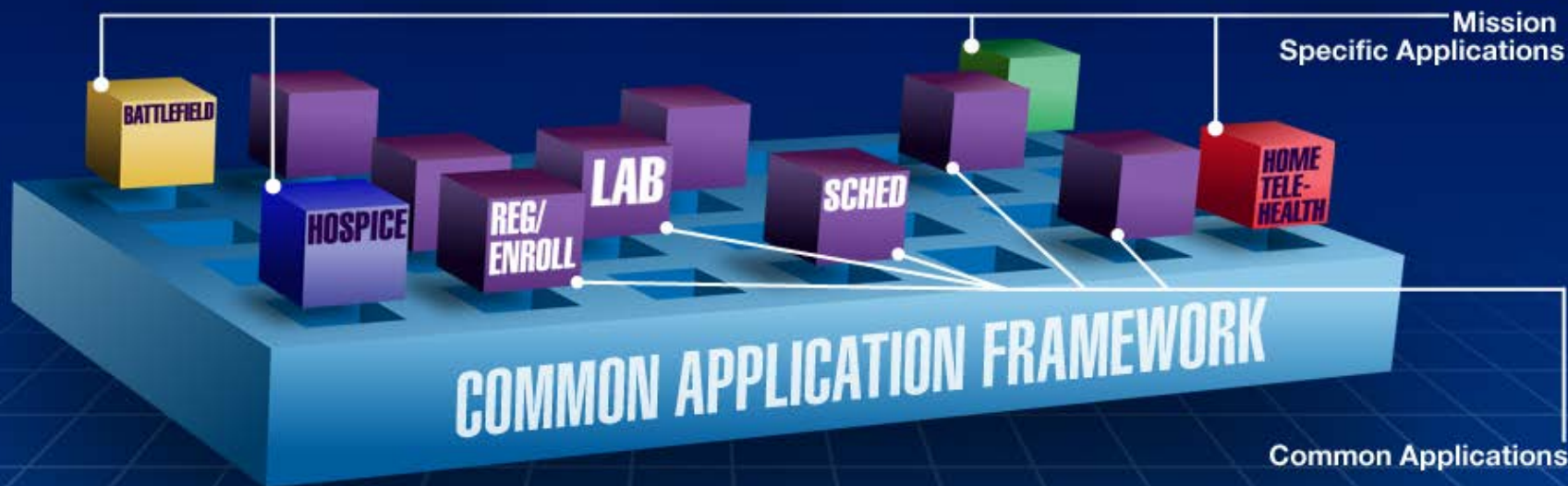
The Nationwide Health Information Network

PRESENTATION

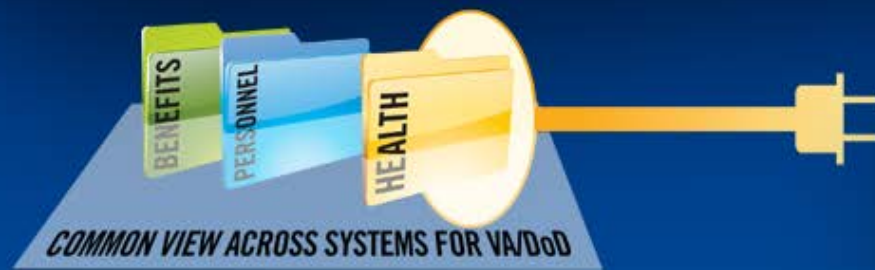


A Variety of Devices (Web/Applications/User Interfaces)

APPLICATION



DATA



Health Pilots

San Diego Pilot

January 2010

- **Health Record Data:**
Healthcare Information
Technology Standards
(HITSP) C32 subset:
 - Allergy/Drug Sensitivity
 - Condition
 - Healthcare Provider
 - Information Source
 - Language Spoken
 - Medication
 - Person Information
 - Support
- **Partners:**
 - San Diego VA Medical Center
 - Naval Medical Center San Diego
 - Kaiser Permanente in San Diego

Tidewater Pilot

September 2010

- **Health Record Data:**
 - HITSP C32 subset (from San Diego)
 - Comment
 - Hematology Lab Result
- **Partners:**
 - Naval Medical Center Portsmouth
 - VA Medical Center Hampton
 - Med Virginia

Spokane Pilot

March 2011

- **Health Record Data:**
 - HITSP C32 subset (from Tidewater)
 - Vital Sign
 - Chemistry Lab Result
- **Partners:**
 - 92nd Medical Group at Fairchild AFB
 - Spokane VA Medical Center
 - Inland Northwest Health System

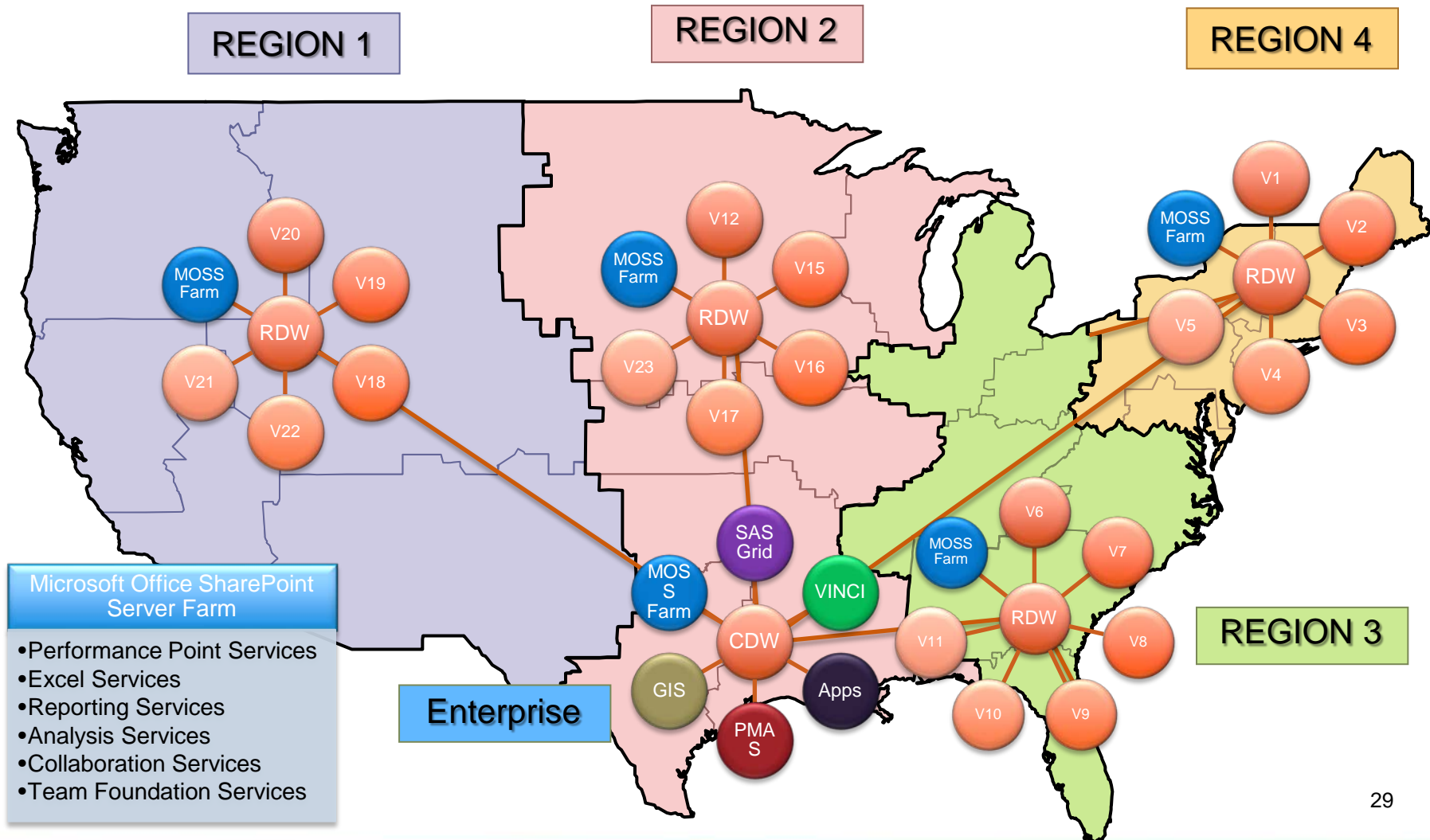
Future Pilots

September 2011

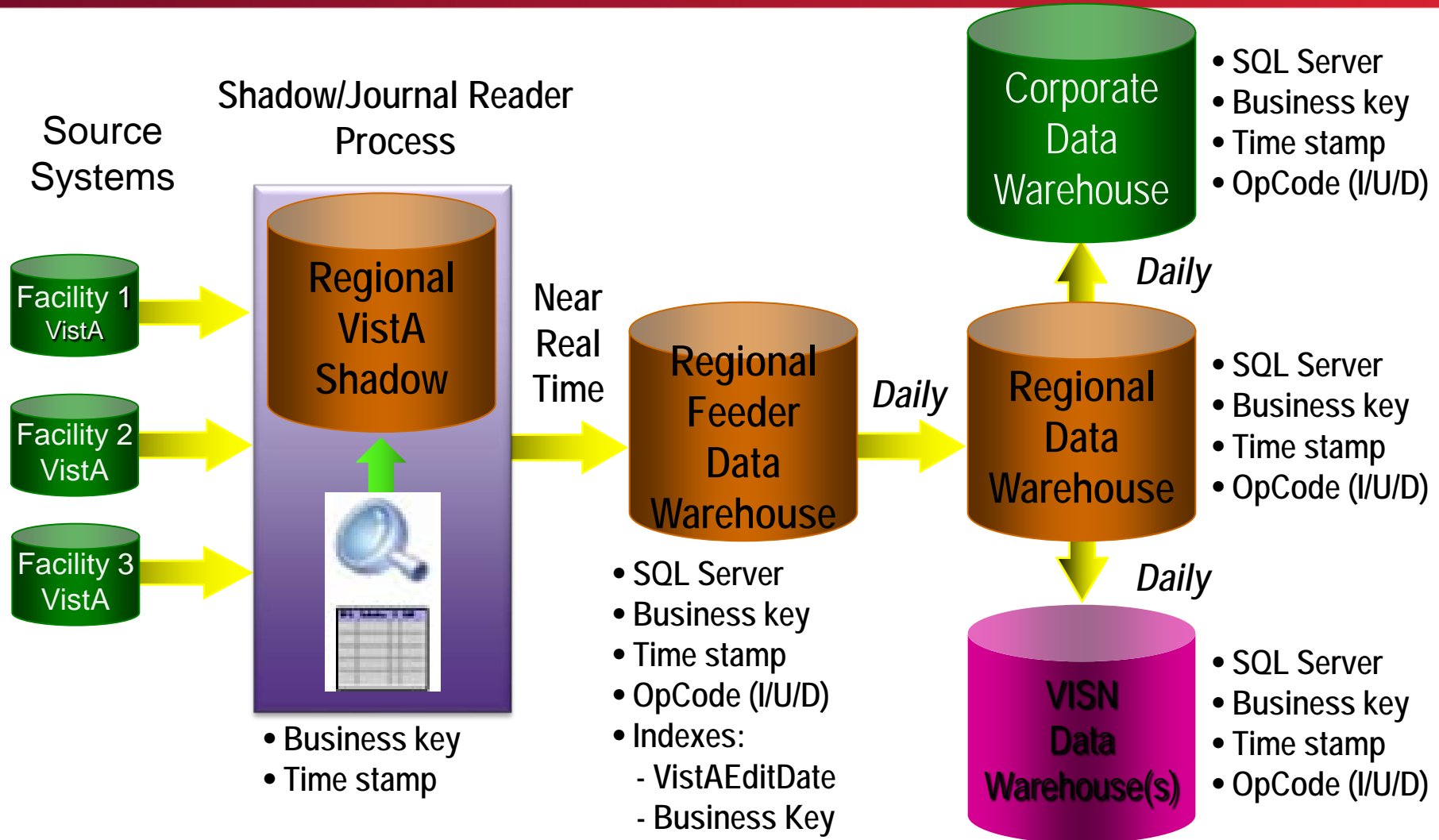
- **Health Record Data:**
 - HITSP C32 subset (from Spokane)
 - Advance Directive *
 - Encounter
 - Immunization *
 - Insurance Provider
 - Procedure
 - Unstructured Documents:
 - Consults/Referrals
 - Discharge Summaries
 - Results of Diagnostic Studies
 - Procedure Notes
 - History & Physicals
- **Partners:**
 - By September 2011 our goal is to have several additional pilot sites up and running with information sharing between various VA, DoD, and private sector partners

* will display but not send

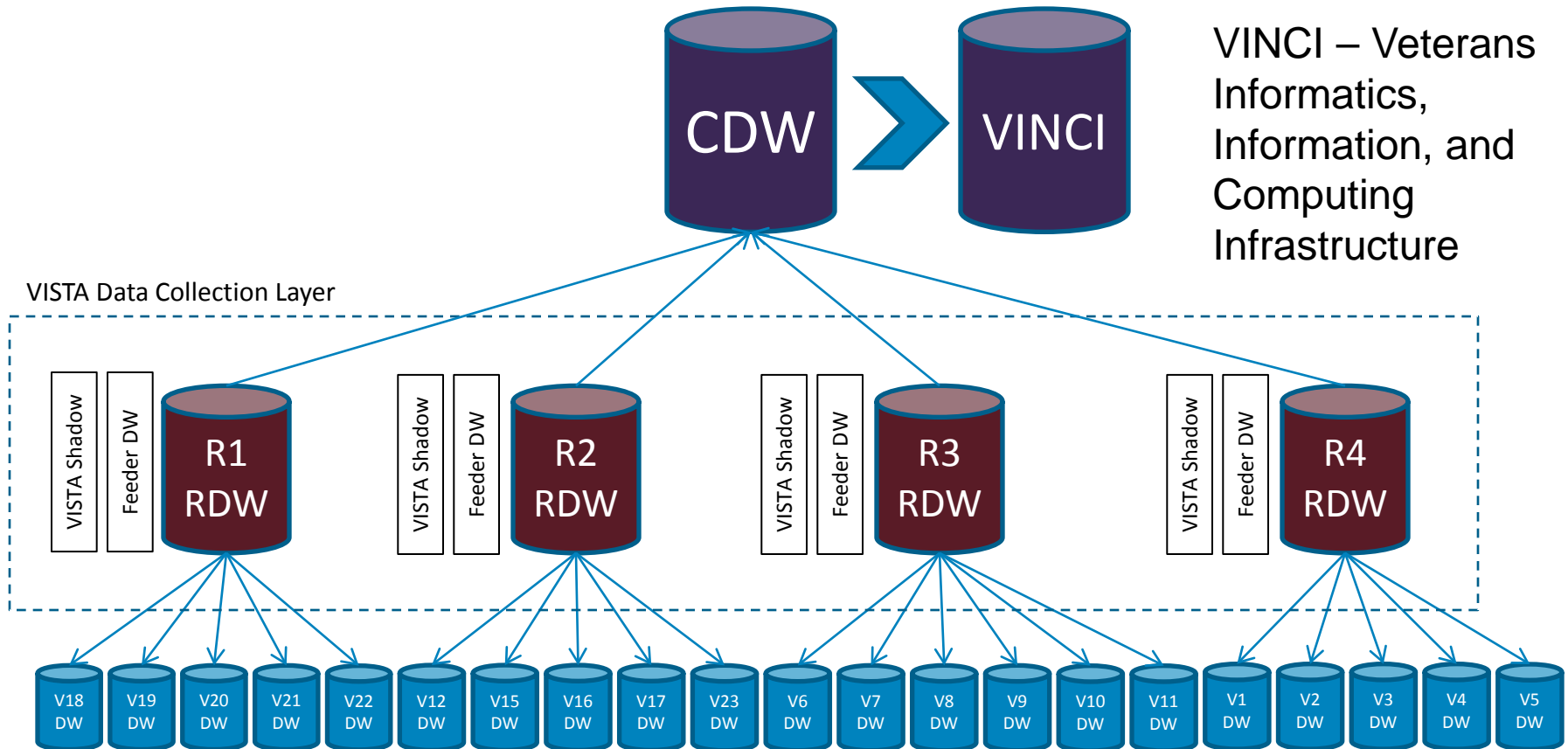
VA Warehousing and Analytical Environment



VA VISN, Regional, and National Data Warehousing



Analytical Environments



Questions?

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